

SHILOVSKAYA, OLYA, uchenitsa 4-go klassa

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N '61. (MIRA 14:12)

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(Animals, Habits and behavior of)

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35 no.3:39-40 Mr '64. (MIRA 17:5)

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FIRISOV, Asan Makhmetovich; CHILONSKIY, Aleksandr  
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(Roofs) (Roofing, Iron and steel)

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VERINA, G.P., tekhnicheskii redaktor

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NIKOLAYEV, Ivan Ivanovich, doktor tekhnicheskikh nauk; CHERNYSHEV,  
Mikhail Andreyevich, kandidat tekhnicheskikh nauk; SHILOVSKIY,  
Viktor Anstol'yevich, kandidat tekhnicheskikh nauk; NIKOLAYEV, I.I.,  
professor, redaktor; PRYSAKHZON, B.M., kandidat tekhnicheskikh nauk,  
redaktor; VERINA, G.P., tekhnicheskiiy redaktor

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SHILOVTSEV, S.P., prof.; BESPALOV, G.S., doktor med. nauk; SHILOVTSEVA, A.S.,  
kand. med. nauk; SHKOL'NIKOVA, S.A.; KRICHEVSKIY, A.L.

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SHILOVTSEV, S.P., prof.; SHILOVTSEVA, A.S., kand. med. nauk; SHKOL'NIKOVA,  
S.A.; KRICHEVSKIY, A.L., aspirant

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24:11-31 '63 (MIRA 17:4)

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nauki prof. S.P. Shilovtsev) Kuybyshevskogo meditsinskogo insti-  
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(NEOPLASMS, exper.

prev. & control of growth by salts of calcium,  
magnesium & bromine)

(CALCIUM, eff.

calcium salts, prev. & control of neoplasm growth)

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(MEDIASTINUM—DISEASES)

SHILOVTSLEV, S.P., prof.; BESPAIYOV, G.S., doktor med. nauk; SHILOVTSOVA, A.S.,  
kand. med. nauk; SHEOL'NIKOVA, S.A.; KRICHEVSKIY, A.L.

Preventive and therapeutic effects of magnesium and calcium salts  
and of bromides in malignant tumors. Vest. khir. no.12:14-22 '62.  
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Kuybyshevskogo meditsinskogo instituta. Adres avtorov: Kuybyshev,  
meditsinskiy institut, klinika obshchey khirurgii.

SHILOVTSEV, S.P., prof.; SHILOVTSEVA, A.S., kand. med. nauk; SHKOL'NIKOVA,  
S.A.; KRICHEVSKIY, A.L., aspirant

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salts and bromides on malignant tumors. Trudy Kuib. med. inst.  
24:11-31 '63 (MIRA 17:4)

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nauki prof. S.P. Shilovtsev) Kuybyshevskogo meditsinskogo insti-  
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SHILOVTSEVA, A.S.

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Soldatov) Kuybyshevskogo meditsinskogo instituta.  
(LUNGS — COLLAPSE) (TONSILS — SURGERY)

SHILOVTSEVA, A.S., kand. med. nauk

Effect of magnesium and calcium salts and bromides on the course of papillomas; an experimental and clinical study.

Med. inst. 24:108-120 '63

(MIRA 17:4)

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NIKOLAYCHIK, N.; SHILOVTSOVA, L.

A matter of great governmental importance. V pom.profaktivu 14 no.16:  
26-29 Ag '53. (MIRA 6:7)

(Labor and laboring classes--Dwellings)

IVANOV, Igor' Vladimirovich, shofer 2-go avtobusnogo parka g. Moskvy;  
SHILOVTSEVA, L.M., redaktor; MAL'KOVA, I.Y., tekhnicheskii redak-  
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[More than 600,000 kilometers of travel without major repairs] Za  
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red.; BILOUS, I.F., kandi. ist. nauk, zam. glav. red.;  
MARISOVA, I.V. [Marisova, I.V.], kandi. biol. nauk, dots.,  
red.; SVYNKO, Y.M. [Svynko, I.M.], red.; TATARINOV, K.A.  
[Tatarinov, K.A.], kandi. biol. nauk, dots., red.;  
SHIMANSKAYA, V.O. [Shimanska', V.O.], rei.

[Materials on the study of the natural resources of  
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institut (for Tatarinov, Marisova).

SHILOVTSEVA, L. S.

USSR/ Chemistry

Card 1/1      Pub. 22 - 31/62

Authors : Nesmeyanov, A. N., Academician; Perevalova, E. G.; Golovnya, R. V.; and  
Shilovtseva, L. S.

Title : About ~~arylferrocenes~~ and ferrocenylamine

Periodical : Dok. AN SSSR 102/3, 535-538, May 21, 1955

Abstract : Using various diazo-compounds the authors synthesized m-nitrophenylferrocene and p-ferrocenylphenol and then utilized the m-nitrophenylphenylferrocene and a previously described p-isomer for the synthesis of m and p-ferrocenylanilines. The ferrocenylamine was established to be an orange colored crystalline substance well soluble in organic solvent and when distilled in vacuo it offers acetylene and benzoyl derivatives. Ferrocenylamine chloride is soluble in water but not in hydrochloric acid. Four references: 3 USSR and 1 USA (1941-1955). Graphs.

Institution : The M. V. Lomonosov State Univ., Moscow

Submitted : March 22, 1955

SCV/20-121-1-32/55

AUTHORS: Nosov, A. N., Penevalova, B. G., Silovtseva, L. S.,  
Bogoravich, L. A.

TITLE: The Synthesis of Methyl Ferrocene (Sintez metilferrotsena)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 1, pp. 117-118  
(USSR)

ABSTRACT: In recent time various mono- and dialkyl ferrocenes were described which were produced by means of a direct alkylation of ferrocene in the presence of aluminum chloride (Refs 1-4) or by reduction of the corresponding ketones (Ref 5) or acids (Ref 6). In the present paper the authors achieved the synthesis mentioned in the title by two ways: a) by reduction of methyl ether of ferrocene carbonic acid (yield 83%) by means of lithium alumohydrate and b) by reduction of the iodine methylate of the N,N-dimethyl-amino-methyl-ferrocene (Refs 7,8) by means of sodium amalgam (yield 94%). In the latter case a small quantity of mono-ferrocenyl carbinol ether ( $C_5H_5FeC_5H_4CH_2$ )<sub>2</sub>O is produced. In an experimental part the reactions a) and b) are described. The infrared and ultraviolet

Card 1/2

## The Synthesis of Methyl Ferrocene

SOV/20-121-1-32/55

spectra of the methyl ferrocene which was produced according to the reactions a) and b) are correspondingly identical. They were taken in the laboratoriya molekulyarnoy spektroskopii kafedry organicheskoy khimii (Laboratory of Molecular Spectroscopy of the Faculty of Organic Chemistry of the Moscow State University). In a paper on ferrocene alkylation (Ref 2) methyl ferrocene with a melting point of  $118 - 119^{\circ}$  was described. The produced product has a melting temperature of  $35,5 - 36,5^{\circ}$ . These last data are undoubted. The reasons for the mentioned divergence are explained later. There are 9 references, 6 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 12, 1958

1. Methyl ferrocene--Synthesis
2. Methyl ethers--Reduction
3. Lithium aluminum hydrates--Chemical reactions
4. Methyl iodide--Reduction
5. Sodium--Chemical reactions

Card 2/2



5(3)

AUTHORS:

Nesmeyanov, A. N., Perevalova, E. G.,  
Shilovtseva, L. S., Ustynyuk, Yu. A.

SOV/20-124-2-25/71

TITLE:

Synthesis of Ferrocene Derivatives by Means of the  
N,N-Dimethyl-Aminomethyl Ferrocene Methiodide (Sintez  
proizvodnykh ferrotsena s pomoshch'yu yodmetilata  
N,N-dimetilaminometilferrotsena)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 2, pp 331-334  
(USSR)

ABSTRACT:

The compound last mentioned in the title was earlier used by  
the authors (Ref 5) for the synthesis of methyl ferrocene. It  
proved to be a suitable reagent for the introduction of the  
ferrocenyl-methyl group (Refs 2-6). In the present paper some  
substitution reactions of the dimethyl-amino group were carried  
out, furthermore ~~methyl-ferrocene~~ was aminomethylated and  
ferrocene aminoethylated. It was thus possible to obtain the  
sodium salt of ferrocenyl-methane sulfonic acid by the interaction  
between the compound mentioned in the title and sodium sulfite.  
By the influence of potassium thiocyanate ferrocenyl-methyl  
thiocyanate was formed. Sodium phenolate and  $\beta$ -naphtholate  
yielded the phenyl- and  $\beta$  naphthyl ether of the ferrocene carbinol.

Card 1/3

## Synthesis of Ferrocene Derivatives

SOV/20-124-2-25/71

by Means of the N,N-Dimethyl-Aminomethyl Ferrocene Methiodide

By ferrocenyl methylation of the p-oxy-azo benzene an azo compound was formed containing a ferrocenyl group. This had hitherto not been possible. On the aminomethylation of the methyl ferrocene (Ref 5) with a mixture of N,N,N',N'-tetramethyldiamino methane and paraform a homoannular (N,N, dimethyl-amino methyl) methyl ferrocene was obtained in a 60% yield. The aminomethylation of the methyl ferrocene was carried out in the substituted cyclopentadiene ring in a yield which was somewhat higher than for ferrocene (51%, Ref 2). The addition of phosphoric acid increased the yield up to 80%. Besides, diaminomethylated methyl ferrocene is formed (10% yield). Thus the methyl group in the methyl ferrocene considerably activates the ferrocene nucleus against electrophilic attacks. The formation of the homoannular compound suggests that the ring to which the methyl group is bound, is activated to a more considerable degree. The successful production of the diaminomethylated methyl ferrocene further proves that the influence exerted by the substituents is transferred from one cyclopentadienyl ring to the other one by means of the iron atom (Ref 9). From the compound mentioned in the title the authors

Card 2/3

Synthesis of Ferrocene Derivatives  
by Means of the N,N-Dimethyl-Aminomethyl Ferrocene Methiodide

SOV/20-124-2-25/71

synthesized the homoannular dimethyl ferrocene. It may be assumed from the comparison of infrared spectra that the alkyl groups are in a 1.3-position. There are 12 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: October 14, 1958

Card 3/3

NESMEYANOV, A.N.; PEREVALOVA, E.G.; SHILOVTSEVA, L.S.

Reactions between organomagnesium compounds and (Ferrocenylmethyl)  
trialkylammonium salts. Izv.AN SSSR.Otd.khim.nauk no.11:1982-1985  
N '61. (MIRA 14:11)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.  
(Magnesium organic compounds) (Ammonium compounds)

25856  
S/020/61/139/004/016/025  
B 103/B206

53750  
AUTHORS:

Nesmeyanov, A. M., Academician, Fevalova, E. G., Gubin, S. P., Nikitina, T. V., Ponomarenko, A. A., and Shilovtseva, L. S.

TITLE:

Properties of phenyl ferrocene

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 139, No. 4, 1961, 888-891

TEXT: The authors investigated: 1) the amino methylation, 2) sulfonation, 3) concurrent (with ferrocene) acetylation, and 4) nitration of phenyl ferrocene. They established that the alkyl group, if linked with the ferrocene ring, facilitates the subsequent electrophilic substitution. In this case, the cyclopentadienyl ring to which the alkyl group is bonded, is more strongly activated. In relation to the ferrocenyl group, the phenyl group is an electron-acceptor group (A. M. Nesmeyanov et al. Ref. 5: DAN, 101, 81 (1955)). These data by the authors were confirmed by M. Rosenblum (J. Am. Chem. Soc., 81, 4530 (1959)). The electrophilic substitution of the hydrogen atoms in the ferrocene ring is deactivated by the phenyl group. 1) Amino methylation. To a mixture of 70 ml of glacial Card 1/6

Properties of phenyl ferrocene

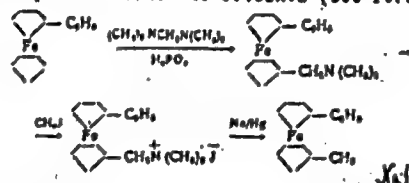
25856  
S/020/61/139/004/016/025  
B103/B206

acetic acid and 4 g of  $H_3PO_4$ , cooled to  $10^\circ C$ , 2.25 g (0.019 mole) of tetramethyldiaminoethane is gradually added, and then 4 g (0.015 mole) of phenyl ferrocene. The reaction mass was stirred for 1 hr at room temperature and for 10 hr at  $110 - 115^\circ C$  in a nitrogen current and subsequently diluted with water to the double amount. The ferrocene (1.5 g) which had not entered into reaction was extracted with benzene. 40% NaOH solution was added to the acidic solution, and the formed (N, N-dimethylaminomethyl)-phenyl ferrocene was extracted with ether. After distilling off the ether, 2.6 g of the above-mentioned compound was obtained as a viscous, dark, reddish-brown oil. The yield amounted to 54% of the theoretical one (related to phenyl ferrocene) and to 96% of the phenyl ferrocene reacted. The final product was distilled in vacuo. Its boiling point was  $150-160^\circ C/3 \text{ mm Hg}$ ;  $n_D^{20} 1.6315$ . In the infrared spectrum of the final product, weak absorption bands existed in the range  $1000$  and  $1100 \text{ cm}^{-1}$ . From this, the authors assume the formation of a mixture from the hetero- and homoannular isomers. The latter seems to form in small quantities. The methiodide of the final product was produced by addition of  $CH_3I$  to

Properties of phenyl ferrocene

3-555  
3/020/61/139/004/016/025  
2103/B206

a solution of 3.2 g in absolute  $\text{CH}_3\text{OH}$  (or in benzene) with precipitation after 15 min by a great amount of anhydrous ether. An almost quantitative (4.3 g) amount of methiodide was produced. It is a yellow, crystalline substance with the decomposition point  $70 - 75^\circ\text{C}$ . Since in the infrared spectrum of the methiodide which was produced from the distilled fipal product, absorption at  $1000$  and  $1100\text{ cm}^{-1}$  is missing, the authors conclude that the substituting groups are in various cyclopentadienyl rings. Through reduction of the methiodide by sodium amalgam, the heteroannular 1, 1-methyl-phenyl ferrocene was obtained (see reaction no. 1).



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2566  
S/020/61/139/004/016/025  
B103/B206

Properties of phenyl ferrocene

The yield was 1.8 g (71% of the theoretical one). Absorption at 1000 and 1100  $\text{cm}^{-1}$  was missing in its infrared spectrum. A free cyclopentadienyl ring can only be proved spectroscopically in the substance which was isolated from the mother liquor. The authors came to the conclusion that the heteroannular isomer was the main component of the mixture produced by amino methylation. Therefore, this reaction mainly occurs in the free cyclopentadienyl ring. 2) To a solution of 10 g (0.016 mole) of phenyl ferrocene in 100 ml of dichloroethane, 10 g (0.060 mole) of freshly prepared dioxane sulfotrioxide was added while cooling with ice. Under the conditions of formation of ferrocene monosulfonic acid; 1', 1 phenyl ferrocene sulfonic acid was obtained.

$\text{C}_6\text{H}_5\text{C}_5\text{H}_4\text{FeC}_5\text{H}_5 \xrightarrow{\text{SO}_3\text{-dioxane}} \text{C}_6\text{H}_5\text{C}_5\text{H}_4\text{FeC}_5\text{H}_4\text{SO}_3\text{H}$ . This acid was isolated as lead salt, which crystallizes with 14 water molecules. Absorption at 1000 and 1100  $\text{cm}^{-1}$  was here also missing; the phenyl and sulfo groups are therefore in different cyclopentadienyl rings. The formation of heteroannular sulfonic acid is also proof of a lower reactivity of the ring.

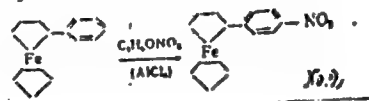
Card 4/6



S/020/61/133/004/016/025  
B103/B206

# Properties of phenyl ferrocene

linked with phenol. 3) The deactivating effect of the phenyl group on the ferrocenyl ring is specially marked during the Friedel-Crafts reaction. A solution of 1.4 ml of acetyl chloride and 2.66 g of  $AlCl_3$  in 10 ml of absolute ether was added in the course of 20 min to a solution of ferrocene (3.72 g) and phenyl ferrocene (5.42 g) in 100 ml of  $CS_2$ . All components were used at a molar ratio of 1:1:1. The authors obtained acetyl ferrocene only with a yield of 25% of the theoretical one, and a mixture of acetyl phenyl ferrocenes of only 5%, 64% of phenyl ferrocene and 30% of ferrocene being recovered unchanged. From this, the authors conclude that ferrocene may be acetylated more easily than phenyl ferrocene. 4) Phenyl ferrocene was nitrated by means of ethyl nitrate in  $CS_2$  in the presence of  $AlCl_3$ . The authors obtained a 1% yield (of the theoretical one) of p-nitro-phenyl ferrocene (see reaction no. 2).



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Properties of phenyl ferrocene

S/020/61/139/004/016/025,  
B103/B206

The main quantity of this final product is isolated together with part of the nonreacted phenyl ferrocene in nonoxidized state (and not as a cation). The authors presume that nitration does not take place with the phenyl ferrocene cation but with phenyl ferrocene. The continuance of the ferrocenyl ring under these conditions is noticeable, probably as a consequence of a reduced capability of being oxidized to a cation as compared with ferrocene. Ferrocene itself cannot be nitrated under these conditions. Attempts of the authors to nitrate ferrocene with various other reagents (e. g., nitronium borofluoride) also failed. Only oxidation of ferrocene to the cation which is inert in reactions of the electrophilic substitution, was brought about. There are 9 references: 7 Soviet-bloc and 3 non-Soviet-bloc. One reference to English-language publications is given in the body of the abstract, the another one reads: M. Rosenblum, R. B. Woodward, J. Am. Chem. Soc., 80, 5443 (1958)).

ASSOCIATION: Moskovskiy gosudarstvennyy universitet, im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: April 19, 1961

Card 6/6

S/062/62/000/010/001/003  
B144/B186

AUTHORS: Nesmeyanov, A. H., Perevalova, E. G., and Shilovtseva, L. S.

TITLE: Aminomethylation of phenyl, tolyl, and chloro ferrocenes

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh nauk, no. 10, 1962, 1767 - 1772

TEXT: Phenyl, p-tolyl, and chloro ferrocenes were aminomethylated with N,N,N',N'-tetramethyl diamino-methane in glacial acetic acid in the presence of  $H_3PO_4$  by heating between 110 and 115°C in an  $N_2$  stream for 12 hr. The mixture was then diluted with the same amount of  $H_2O$ , the non-converted initial products were extracted with benzene, and the solution was alkalized with 40% NaOH. The end products were extracted with ether and chromatographed on  $Al_2O_3$  impregnated with formamide. The quantitative composition of N,N-dimethyl-amino-methyl ferrocenes were determined by paper chromatography.

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Card 1/3

Aminomethylation of phenyl,...

S/062/62/000/010/001/003  
B144/B186

Initial ferrocene	Amino isomers			Iodine methylates	
	number, type	R <sub>f</sub> in benzene	% of total amines	m.p. in IR spectrum	1000-1100 cm <sup>-1</sup>
phenyl	1 heterocyclic	0.14	82	90-95	-
	2 homocyclic	0.38;	15	143-145	(1004; 1104
		0.81	3	167-170	(1103; 1106
p-tolyl	1 heterocyclic	0.26	83	95-99	-
	1 homocyclic	0.57	17	172-175	1004, 1106
chloro	1 heterocyclic	*0.22	80	185-190	-
	1 homocyclic	*0.32	11	163-166	1006; 1104
	1 mixed		9		

\* CHCl<sub>3</sub>:C<sub>6</sub>H<sub>6</sub> = 1:1

Thus the aminomethylation was effected mainly (~5:1) in the non-substituted cyclopentane dienyl ring; this was shown also by the IR spectra of iodo-methylate of the substances obtained. The spectra of heterocyclic isomers showed no 1000-1100 cm<sup>-1</sup> bands. Iodomethylates were obtained by converting amines with twice the methyl iodide excess in benzene; their compositions and gross formulas are given. An excess of 1,1'-methyl-p-tolyl ferrocene, Card 2/3

Aminomethylation of phenyl,...

S/062/62/000/010/001/003  
B144/B186

$C_{18}H_{18}Fe$  (m.p. 93 - 95°C) was obtained from the iodomethylate of 1,1'-(N,N-dimethyl aminomethyl)-p-tolyl ferrocene by reduction with sodium amalgam. There are 2 tables.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: March 7, 1962

Card 3/3

S/062/62/000/011/006/021  
B101/B144

AUTHORS: Nesmeyanov, A. N., Perevalova, E. G., Shilovtseva, L. S.,  
and Tyurin, V. D.

TITLE: Ferrocenyl methylation by means of N,N-dimethyl aminomethyl  
ferrocene and its iodo methylate

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye khimicheskikh  
nauk, no. 11, 1962, 1997 - 2001

TEXT: The following syntheses were made with N,N-dimethyl aminomethyl  
ferrocene (A), trimethyl(ferrocenyl-methyl) ammonium iodide (B), and di-  
methyl-ethyl(ferrocenyl-methyl) ammonium bromide (C):- (1) Reaction of B  
with  $\text{Na}_2\text{S} \cdot 10\text{H}_2\text{O}$  on a boiling water bath and extraction with ether produced  
di-(ferrocenyl-methyl) sulfide, yield 54%, m.p. 107 - 108°C (with decom-  
position). The IR spectrum contained absorption bands at 1000 and  
1104  $\text{cm}^{-1}$ . (2) Di-(ferrocenyl methyl) disulfide, yield 33%, m.p. 125-127°C  
(with decomposition), was obtained from B and  $\text{NaSH}$ , the latter being pro-  
duced by bubbling  $\text{H}_2\text{S}$  through  $\text{NaOH}$  solution. (3) The synthesis of ferro-

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S/062/62/000/011/006/021  
B101/B144

Ferrocenyl methylation by means of...

ferrocenyl methyl acetate was made in three ways: (a) Reaction of B with glacial acetic acid at 90 - 95°C in N<sub>2</sub> atmosphere, yield 25%, m.p. 74-76°C.

IR absorption bands at 997, 1104, and 1740 cm<sup>-1</sup>. A compound soluble in benzene, (gross formula C<sub>12</sub>H<sub>12</sub>Fe, m.p. 115-135°C) formed at 110-150°C; it

was not further investigated. (b) Reaction of C with sodium acetate at 150-155°C in vacuum (7 mm Hg), yield 39%, m.p. 75-76°C. (c) Reaction of A with acetic anhydride, yield 89%. The compound obtained by (c) was, as to m.p. and IR spectrum, identical with the compounds obtained by reactions (a) and (b). (4) Reaction of A with methyl benzoate in N<sub>2</sub> atmosphere at

130 - 135°C, and extraction with benzene, produced ferrocenyl methyl benzoate, yield 50%, m.p. 132-133°C, IR bands at 1003, 1098, 1700 cm<sup>-1</sup>.

(5) Reaction of A with methyl anthranilate produced ferrocenyl methyl anthranilate, yield 46%, m.p. 123-124°C, IR bands at 996, 1102, 1686 cm<sup>-1</sup>.

(6) Heating of B with ethyl acetate at 120-125°C produced, instead of the expected ferrocenyl methyl acetate, ferrocenyl carbinol ethyl ether, yield 42%, b.p. 68-70°C/0.3 mm Hg, n<sub>D</sub><sup>20</sup> 1.5840. The IR bands at 1002, 1106 cm<sup>-1</sup>

Card 2/4

Ferrocenyl methylation by means of...

S/062/62/000/011/006/021  
B101/B144

proved the existence of a nonsubstituted cyclopentadienyl ring. Bands of an ester carbonyl group were not observed. (7) B with butyl acetate produced ferrocenyl carbinol butyl ether, yield 35%, m.p. 31.5-32.5°C, b.p. 105-106°C/2 mm Hg,  $n_D^{20}$  1.5695. IR bands at 1004 and 1104  $\text{cm}^{-1}$ . (8) Heating of B with piperidine at 110°C produced N-(ferrocenyl-methyl) piperidine, yield 94%, m.p. 84.5 - 85.5°C, IR bands at 1002, 1103, 1303  $\text{cm}^{-1}$ . Reaction of A with piperidine did not lead to a substitution of the dimethyl amino radical. (9) N-(ferrocenyl-methyl) morpholine was obtained from B and morpholine at 120-130°C, yield 95%, m.p. 74-75°C, IR bands at 1006, 1104  $\text{cm}^{-1}$ . (10) N-(ferrocenyl-methyl) aniline was obtained from B and aniline in boiling aqueous solution, yield 75%, m.p. 84-84.5°C, IR bands at 1000, 1106, 1602, 1552-1566, 3930  $\text{cm}^{-1}$ . (11) N-(ferrocenyl-methyl) phthalimide was obtained from B and potassium phthalimide in dimethyl formamide solution at 130-140°C, yield 97%, m.p. 209-210°C (with decomposition), IR bands at 1000, 1102, 1706, 1758  $\text{cm}^{-1}$ . (12) Ferrocenyl methyl amine was obtained from N-(ferrocenyl-methyl) phthalimide and hydrazine hydrate heated at 80-90°C in  $\text{N}_2$  atmosphere, by precipitation with NaOH, b.p. Card 3/4



Ferrocenyl methylation by means of...

S/062/62/000/011/006/021  
B101/B144

108-110°C/0.3 mm Hg,  $n_D^{20}$  1.6310, IR bands at 1002, 1106, 3288, 3368  $\text{cm}^{-1}$ .

This compound decomposes in air. Bubbling of HCl through its benzene solution yielded ferrocenyl methyl amine hydrochloride, decomposition temperature 233-235°C.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova  
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: April 2, 1962

Card 4/4



cene did not react with mesitylene, and diethylferrocene formed only 2,

Card 1/2

U 40146-5

A REGISTRATION NO: AP5007661

cyclopentadienyl-mesitylene iron. Interaction between acetyl-ferrocene and

acetyl-ferrocene and a mixture of acetyl-ferrocene and cyclopentadienyl-

acetyl-ferrocene. The results of the interaction of acetyl-ferrocene with

acetyl-ferrocene and a mixture of acetyl-ferrocene and cyclopentadienyl-

acetyl-ferrocene. The results of the interaction of acetyl-ferrocene with

acetyl-ferrocene and a mixture of acetyl-ferrocene and cyclopentadienyl-

Institut elementoorganicheskikh soedineniy, Akademii nauk SSSR

Chemical Institute of the Academy of Sciences, Moscow

U 40146-5

EN 1

SUB CODES: OC, OC

N 40146-5

OTB IR: 000

NESMEYANOV, A.N., and Kozik; M.I.; ZANAI, N.I.; SHANTIKOVA, I.I.

Exchange of ligands in substituted ferrocenes. Dokl. AN SSSR  
160 no.6:1327-1330 F '65.

(MIRA 18:2)

1. Institut elementoorganicheskikh soedineniy AN SSSR.

ACC NR: AP7013160

SOURCE CODE: UR/0062/66/000 012/2239.2240

AUTHOR: Shilovtseva, L. S.; Perevalova, E.; Nefedov, V. A.; Nesmeyanov, A. N.

ORG: Moscow State University Im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Aminomethylation of ethylferrocene

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 12, 1966, 2239-2240

TOPIC TAGS: methylation, ferrocene

SUB CODE: 07

ABSTRACT: The dimethylaminomethylation of ethylferrocene was conducted with N,N,N',N'-tetramethyldiaminomethane. 1,2-, 1,3-, and 1,1'-(N,N-dimethylaminomethyl)ethylferrocenes (total yield approximately 70% of the theoretical) and 1,1'-di(N,N-dimethylaminomethyl)-2-ethylferrocene and 1,1'-di(N,N-dimethylaminomethyl)-3-ethylferrocene (total yield about 7%) were isolated from the reaction products. The products were characterized, and their structures studied according to their absorption capacity and infrared spectra. The yield of the homoannular isomers was approximately four times as great as that of the heteroannular isomers. The ratio of 1,3-isomers to 1,2-isomers was approximately 3:1, both for the mono- and for the diamines.  $R_f$  values for the isomers obtained

Card 1/2

UDC: 542.958.3 + 547.1'13 + 546.72

0933 0876

ACC NR: AP7013160

are cited for chromatography on alumina impregnated with formamide.  
Orig. art. has: 1 table. [JPRS: 40,422]

Card 2/2

SHILOZBERG, Yu.A., inzhener.

Some problems in general automation of industrial machinery.  
Prom.energ. 12 no.9:1-3 S '57. (MIRA 10:10)  
(Automation)

BLANTER, M.S.; FINKEL'SHTEYN, B.M.; SHIL'SHTEYN, S.Sh.

Thermodynamics of binary alloys. Izv.vys.ucheb.zav.; Chern.  
met. no.3:10-12 '60. (MIRA 13:4)

1. Moskovskiy institut stali.  
(Alloys--Thermal properties)



86235

24.7100 1043, 1035, 1142

S/032/60/026/008/035/046/XX  
B020/B052

AUTHORS: Begorodskiy, O. V. and Shil'shteyn, S. Sh.  
TITLE: Goniometer Head for X-Ray Structural Analysis by a  
Double-crystal Spectrometer  
PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 8,  
pp. 1012 - 1013

TEXT: The double-crystal X-ray spectrometer detects errors in the structure of single- and polycrystal samples, exactly determines the stress distribution in wide single-crystal regions, and the lattice periods of single- and polycrystal materials. The device type YPC-50M (URS-50I) used at present does not permit sufficiently rapid and exact studies. The goniometer head designed by the author (Fig.1) simplifies the fixation of the objects to be studied in a position which corresponds to the reflection of X-rays from every crystallographic plane. Thus, an accuracy of up to 0.5" is attained. The double-crystal spectrometer is attached to the device URS-50I. The first crystal is put into the clamp

Card 1/2

Goniometer Head for X-Ray Structural Analysis by a Double-crystal Spectrometer 86235  
S/032/60/026/008/035/046/XX  
B020/B052

of the monochromator, the second one into the goniometer head. The widths of the rotation curves of a natural calcite crystal (211) and a germanium single crystal (111) were determined by the above goniometer head attached to the device URS-50I (Fig.2). The theoretical width of reflection of an ideal calcite crystal is 5.8". In the given case, a width of 11" was obtained due to the insufficient quality of the crystal. The experiments showed that the band width of a germanium crystal with a dislocation density of  $10^{-2} \text{ cm}^{-2}$  is 20", and of a crystal with a dislocation density of  $10^4 \text{ cm}^{-2}$  it is 40". The rotation curves thus have two maxima which is due to the presence of blocks in the germanium single crystal, with disorientation angles of approximately 20". The theoretical width of the rotation curve of the ideal germanium crystal is 15.8". There are 2 figures and 1 non-Soviet reference: 1 German.

Card 2/2

83560

S/020/60/134/001/012/021  
B004/B060

9.4340

AUTHORS: Bogorodskiy, O. V., Umanskiy, Ya. S., Shil'shteyn, S. Sh.

TITLE: On the Nature of the Mosaic Structure of Single Crystals  
of Germanium and Silicon

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 1,  
pp. 114 - 116

TEXT: The authors wanted to check the dislocation character of the mosaic structure (Fig. 1), and studied single crystals of germanium and silicon that were drawn from the melt along the (111)-axis. The samples used were 2-3 mm thick foils cut perpendicular to the (111)-axis. It was established by etching that almost all of the dislocations exhibited the Burgers vector  $a/2$  (110). In some cases, the authors observed lines which corresponded to small-angle boundaries. The density of surface dislocations was  $10^2 - 10^6 \text{ cm}^{-2}$  for germanium,  $10^2 - 10^3 \text{ cm}^{-2}$  for silicon. The principle of the X-ray analysis is described (Fig. 2). The monochromatic X-ray beam is reflected from the crystal I, and hits on crystal II which is rotated around small angles. The authors used the

Card 1/3

83560

On the Nature of the Mosaic Structure of  
Single Crystals of Germanium and Silicon

S/020/60/134/001/012/021  
B004/B060

YPC-50M (URS-50I) apparatus with Geiger counter. The curve of the intensity of double reflection of I as a function of the angle of rotation  $\beta$  is defined as rotation curve. The authors constructed a special goniometer head which allowed rotations around small angles with an accuracy of 0.5". The rotation curves obtained experimentally are shown in Fig. 3, the data are given in Table 1. The distances between the maxima equal the disorientation angle of the crystal blocks. Experimental data show that the Ge single crystals have a mosaic structure with all dislocation densities, while the disorientation angles of the blocks change little, although the dislocation densities differ by four orders of magnitude. This cannot be explained by the Burgers model. In silicon, the blocks are considerably smaller, which likewise contradicts the Burgers model, since the lattice constants of Ge and Si are little different. The germanium crystals with small-angle boundary showed fragment structure. The authors arrived at the conclusion that the block boundaries in Ge and Si may be connected with dislocations, but not according to the mechanism of the small-angle boundary. Also structural defects might play a role here. The interfaces between the fragments, on the other hand, consist of dislocations in agreement with the

X

Card 2/3

FOMIN, V.G.; OVODOVA, A.V.; POGORODSKIY, O.V.; SHIL'SHTEYN, S.Sh.

Some features of the crystallization of germanium-silicon alloys  
in zone melting. Kristallografiia 6 no.2:256-260 Mr-Apr '61.  
(MIRA 14:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proektnyy institut  
redkometallicheskooy promyshlennosti.  
(Germanium-silicon alloys) (Dislocations in crystals)  
(Melting)

JP(a)/AFWL/ASD(a)-5/AS(mp)-2/ESD(c)/ESD(g)/

ACCESSION NR: AP4046049

S/0070/64/009/005/0727/0729

AUTHOR: Shil'shteyn, S. Sh.

TITLE: Investigation of the structural perfection of germanium  
single crystals 4

Kristallografiya, v. 9, no. 5, 1964, 727-729

DESCRIPTORS: germanium, single crystal, crystal lattice structure,  
imperfection, x ray diffraction, x ray scattering, disloca-  
tion, density, reflection coefficient

ABSTRACT: The perfection of the germanium crystal structure was in-  
vestigated with a two-crystal x-ray spectrometer based on the URS-501  
installation. The principles of the method are described in detail  
in standard books (R. W. James, Optical Principles of the Diffraction  
of X-rays, Bell, London, 1948; A. H. Compton and S. K. Allison, X-  
rays in Theory and Experiment, Van Nostrand, New York, 1935). The

1/3

1 11270 65

ACCESSION NR: AP4046049

... and the procedure for plotting the oscillation curve are  
... Two or three oscillation curves were taken for  
... points on each sample. The width of the oscillation  
curves at half the height and the integrated reflection coefficients  
were measured. The test results indicate that germanium crystals  
with dislocation density from zero to  $10^4 \text{ cm}^{-2}$  scatter x-rays in  
satisfactory agreement with the dynamic scattering theory of Darwin  
and Prince. When the dislocation density reaches  $10^5 \text{ cm}^{-2}$ , consider-  
able broadening of the oscillation curves is observed, and the inte-  
gral reflection coefficient increases. It is concluded that at the  
increased dislocation density the germanium crystals behave in some  
respect as if they had an appreciable mosaic structure. Orig. art.  
has: 1 formula and 1 table.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyekt-  
... Institut splavov i obrabotki tsvetnykh metallov (State Scien-  
... Research Institute for Alloys and the Processing of Nonferrous

11270-05

ACCESSION NR: AP4046049

Metals)

SUBMITTED: 06Feb64

ENCL: 00

SUB CODE: 55

NR REF SOV: 003

OTHER: 009

3/3



1. The first part of the document is a list of the names of the persons who were present at the meeting.

2. The second part of the document is a list of the names of the persons who were present at the meeting.

FEINBERG, R.I.; GOLBERTSKAYA, Ye.S.; SHIL'SHTEYN, S.Sh.

Various types of etch pits in single crystals of  $P_{111}$ -type  
compounds. Trudy Giprosvetmetobrobotha no.24:38-43 '65.  
(MIRA 18:11)

UR/0070/65/010/004/0562/0565

AUTHORS: Petrusevich, R. L. Shil'shteyn, S. Sh.

... perfection of gallium arsenide single

SOURCE: Kristallografiya, v. 10, no. 4, 1965, 562-565

KEY WORDS: single crystal growing, crystal imperfection, gallium  
crystal lattice parameter, crystal dislocation

ABSTRACT: The perfection of GaAs single crystals was investigated by a monocrystal spectrometer using copper K $\alpha$  radiation. A germanium crystal served as monochromator. In view of the closeness of the reflected angles it was found the broadening of the reflection due to dispersion did not exceed the limits of the experimental accuracy in the (1, -1) and 3, -3' positions. The 1--2 mm thick samples were cut from crystals grown by the Bridgman or the Czochralski

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L 64793-65

ACCESSION NR: AP5018727

method along the (111) plane, and etched to exhibit dislocations whose density was identified with the etch-pit density. Comparison of etched and chemically polished crystals indicated that the etch pits had no effect on the shape of the reflection nor on the integrated reflection coefficient. For small dislocation densities the reflection coefficient as a function of angle approached the theoretical values for a perfect gallium arsenide crystal. Broadening of the reflection curves of the (111) and (333) reflections observed on some portions of the crystal differed little, indicating that the main reason for the broadening was the dislocation caused by the mosaic structure. For a dislocation density of  $5 \times 10^4 \text{ cm}^{-2}$  the reflection curves were somewhat broader than the theoretical widths but the integrated reflection coefficients are small, increasing approximately at a density of  $1 \times 10^5 \text{ cm}^{-2}$ , especially for the (333). The most unexpected were the low values of the reflection coefficient for the (111) reflection at higher angles. Possibly other defects also contribute to the increase in the reflection coefficient. No sys-

L 64793-65

ACCESSION NR: AP5018727

3

... differences in the perfection of the A and B planes of GaAs  
... orig. art. has: 1 table.

... Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy  
... i obrabotky tsvennykh metallov (State Scientific  
... Institute of Alloys and Processing of Nonferrous

REPORT: 246164

ENCLOS: 00

SUB CODE: SS

REF: 002

OTHER: 006

Card 3/3

ACCESSION NO: AP5018732

UR/0070/65/010/004/0580/0582

548.4

AUTHORS: Shil'shteyn, S.Sh.; Simonova, T.I.

TITLE: The problem of the nature of the nondislocation etch pits

SOURCE: Kristallografiya, v. 10, no. 4, 1965, 580-582

TOPIC TAGS: germanium, etched crystal

ABSTRACT: New data were obtained on the nature of the "little" etch pits in germanium. The investigation showed that these etch pits appear immediately when the etching time with a solution of 12% FeCl<sub>3</sub> in H<sub>2</sub>O is increased to 5 or 6 min. If a piece of germanium is allowed to boil for several minutes in a solution of 12% FeCl<sub>3</sub> in H<sub>2</sub>O, in addition to the "big" etch pits, "little" etch pits appear before the etching. The

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ACCESSION NR: AP5018732

4

"little" pits appear extremely elongated if the orientation is 4--5° off [111] and do not appear for larger deviations. Unlike dislocation pits, the "little" pits reach a maximum with increasing etching and then disappear. This fact, together with comparison of ~~dislocation~~ free germanium and comparison of pit densities before and after quenching and annealing, led to the conclusion that the "little" pits are due to accumulations of point defects. Orig. art. has: 3 figures and 1 table.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy tsentr obrabotki i spetsialnykh metallov (State Scientific-

SUB CODE: 53

OTHER: 006

2/2

L 18847-66 EWT(m)/T/EWP(t) IJP(c) JD

ACC NR: AT6006471

SOURCE CODE: UR/2680/65/000/024/0038/0043

AUTHOR: Petrusevich, R. P.; Sollertinskaya, Ye. S.; Shil'shteyn, S. Sh. 43  
B+1

ORG: State Scientific-Research Planning Institute of Alloys and the Processing of Nonferrous Metals (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov)

TITLE: Various kinds of etch pitting in single crystal compounds of the type  $A_{III}B_V$  A

SOURCE: Moscow. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut splavov i obrabotki tsvetnykh metallov. Trudy, no. 24, 1965. Metallovedeniye i obrabotka tsvetnykh metallov i splavov (Metal science and the treatment of nonferrous metals and alloys), 38-43

TOPIC TAGS: gallium arsenide, indium antimonide, single crystal, etched crystal, dislocation effect, defect structure, metallographic examination, semiconducting material

ABSTRACT: Etch pitting was studied in single crystals of  $GaAs$  and  $InSb$ . The formation of small pits on (111) surfaces and their redistribution upon heating were

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L 18847-66

ACC NR: AT6006471

dissociated from the larger dislocation etch pits which generally form after chemical polishing. The etching conditions for obtaining the small pits were as follows: GaAs--the polishing solution was 1 part HF, 3 parts HNO<sub>3</sub>, 2 parts H<sub>2</sub>O (polished at room temperature for 2 to 3 min) and the etchant for small pits was 1 part HNO<sub>3</sub>, 3 parts H<sub>2</sub>O, 0.5% AgNO<sub>3</sub> (at boiling point 1.5 to 2 min); InSb--1 part HF, 2 parts HNO<sub>3</sub> (polish at room temperature for 30 sec) and 1 part HF, 1 part H<sub>2</sub>O<sub>2</sub>, 8 parts H<sub>2</sub>O, 0.5% AgNO<sub>3</sub> (etch 3 min at room temperature). Micrographs (200 and 440x) showed that the small pits became larger and formed terrace-like steps and subsequently became flat and eventually disappeared. After repolishing and etching, they reappeared in about the same number indicating that they are caused by defects extending deep into the crystals. Some crystals were heat treated at 1100 and 400°C (60 hr), cooled slowly (1 day), repolished and etched. Small pitting reappeared except for randomly depleted areas. Within the depleted zones, the larger dislocation etch pits could still be observed. These data indicated that the small pits were not caused by dislocations but by clusters of point defects. Only the point defects could have been affected by the heat treatment. Orig. art. has: 3 figures, 1 table.

SUB CODE: 20/

SUBM DATE: 00/

ORIG REF: 003/

OTH REF: 007

Card 2/2

vmb

SHIL'T, B.A.; LYUBAN, A.P.; MANCHINSKIY, V.G.

Rate of interaction among the hard components of blast furnace  
slags. Stal' 16 no.4:303-307 Ap '55. (MIRA 9:7)

1.Leningradskiy politekhnicheskoy institut.  
(Blast furnaces) (Slag)

unaffected. These gases begin to react among them-  
selves to solid state. This inter-acts with the reduction of a  
portion of the oxygen resulting in a solid and dense and leads to  
the formation of a solid state. This is the primary stage

ACCESSION NR: AP3007869

S/0197/63/000/008/0057/0062

AUTHORS: Kunin, P.; Taksar, I.; Shiltere, M.; Shilter, E.

TITLE: On energy spectra and oscillator forces in single valence atoms

SOURCE: AN LatSSR. Izvestiya, no. 8, 1963, 57-62

TOPIC TAGS: Shrodinger equation, single valence atom, potential field, neutral atom, single charge ion, lithium atom, sodium atom, potassium atom

ABSTRACT: The Shrodinger equation has been solved for single-valence atoms in two effective potential fields given by

$$U = -\frac{B}{r} + \frac{s(s+1)}{2r^2}, \quad (1)$$

where B = 1 for neutral atoms, B = 2 for single-charge ions, etc., and by a second, more complicated, one given by

$$U = \frac{-2r^2 - 2ar + s(s+1)b}{2r^2(r+b)} \quad (2)$$

Card 1/2

ACCESSION NR: AP3007869

A closed form solution is obtained for (1) and a three-term recurrence formula, represented by a series, for (2). Detailed numerical computations on an electronic computer are obtained for lithium, sodium, and potassium atoms and in isoelectron series of lithium. The various parameters appearing in the equations for various energy levels are determined from experimental data. All computations were performed on the BESM-2 VTs computer at Latviyskiy gosudarstvennogo universitet Im. P. Stuchki (Latvian State University). Orig. art. has: 12 formulas and 1 table.

ASSOCIATION: none

SUBMITTED: 26Dec62

DATE ACQ: 21Oct63

EXCL: CO

SUB CODE: PH

NO REF SOV: 003

OTHER: 000

Card 2/2

KUNIN, P.; TAKSAR, I.; SHILTER, E. [Silters, E.]

Effective potential method for determining the sodium  
atom. Izv. AN Latv. SSR no.10:49-53 '63. (MIRA 17:1)

ACCESSION NR: AP3007869

S/0197/63/000/008/0057/0062

AUTHORS: Kunin, P.; Taksar, I.; Shiltere, M.; Shilter, E.

TITLE: On energy spectra and oscillator forces in single valence atoms

SOURCE: AN LatSSR. Izvestiya, no. 8, 1963, 57-62

TOPIC TAGS: Shrödinger equation, single valence atom, potential field, neutral atom, single charge ion, lithium atom, sodium atom, potassium atom

ABSTRACT: The Shrödinger equation has been solved for single-valence atoms in two effective potential fields given by

$$U = -\frac{B}{r} + \frac{s(s+1)}{2r^2}, \quad (1)$$

where B = 1 for neutral atoms, B = 2 for single-charge ions, etc., and by a second, more complicated, one given by

$$U = \frac{-2r^2 - 2ar + s(s+1)b}{2r^2(r+b)} \quad (2)$$

Card 1/2

ACCESSION NR: AP3007869

A closed form solution is obtained for (1) and a three-term recurrence formula, represented by a series, for (2). Detailed numerical computations on an electronic computer are obtained for lithium, sodium, and potassium atoms and in isoelectron series of lithium. The various parameters appearing in the equations for various energy levels are determined from experimental data. All computations were performed on the BESM-2 VTs computer at Latviyskiy gosudarstvennogo universitet Im. P. Stuchki (Latvian State University). Orig. art. has: 12 formulas and 1 table.

ASSOCIATION: none

SUBMITTED: 26Dec62

DATE ACQ: 21Oct63

EXCL: 00

SUB CODE: PH

NO REF SOV: 003

OTHER: 000

Card 2/2



POPOVKINA, Ritta Aleksandrovna; ~~SHILOVA, Alla Petrovna~~; LIVSHITS, Ya.I.,  
red.; ATROSHCHENKO, L.Ye., tekhn. red.

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[translator]; ~~SHILOVA, A.P.~~ [translator]; TRIFONOV, V., red.;  
DANILINA, A., tekhn. red.

[Progress in the restoration of the national economy of the  
Democratic Republic of Vietnam, 1955-1956] Uspekhi vosstanovleniia  
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(MIRA 11:5)

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Alla Petrovna; OSHANIN, I.M., prof., red.; VU DANG AT, red.;  
SPEKTOROV, L.D., red.; ZELENTOVA, Ye.B., red.; SOBOLEVSKAYA,  
E.S., tekhn.red.

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Okolo 36000 slov. Moskva, Gos.izd-vo inostr.i natsional'nykh  
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strannykh i natsional'nykh slovaray (for Ye.B.Zelentsova,  
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(Annamese language--Dictionaries--Russian)

SHIPILOV, I.F., polkovnik; SHIL'TSEV, A.M., polkovnik, redaktor; KONOVALOVA, YE.K., tekhnicheskii redaktor.

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